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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/020,176	12/18/2001	Werner Beisel	Q67495	9323

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EXAMINER

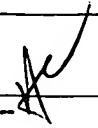
WANG, QUAN ZHEN

ART UNIT PAPER NUMBER

2633

DATE MAILED: 12/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	Application No.	Applicant(s)	
	10/020,176	BEISEL ET AL.	
	Examiner	Art Unit	
	Quan-Zhen Wang	2633	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 18 December 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-7 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-7 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/18/01</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Drawings***

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). Corrected drawings in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.121(d)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "subassemblies are embodied modularly in the form of plug-in circuit boards" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate

changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

3. The disclosure is objected to because of the following informalities: the current applications recites "... input/out ports IO1, IO2, IO3 for optical communication signals ..." (lines 17-18, page 6), however, IO1, IO2, IO3 are not shown in the figures.

Appropriate correction is required.

4. The disclosure is objected to because it contains an embedded hyperlink and/or other form of browser-executable code (page 1, line 28; page 2, line 19). Applicant is required to delete the embedded hyperlink and/or other form of browser-executable code. See MPEP § 608.01.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

5. Claim 6 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 6 recites "optical cross-connect according to Claim 1, in which the subassemblies are embodied modularly in the form of plug-in circuit boards." However, the current application does not teach how the plug-in circuit boards are configured. Furthermore, the current application does not teach what consists of subassemblies of the cross-connect. Therefore, the current application does not enable a person having ordinary skill in the art at the time when the invention was made to make and use the cross-connect with "subassemblies embodied modularly in the form of plug-in circuit boards".

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claim 5 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 5 recites the limitation "the middle multiplex level" in line 2 on page 12. There is insufficient antecedent basis for this limitation in the claim.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Baroncelli (U.S. Patent US 6,728,492 B1).

Regarding claim 1, Baroncelli teaches an optical cross-connect for switching connections (fig. 1) in an optical transmission network, in which optical communication signals of different multiplex levels (fig. 1, STS-48 and STS-12) with respectively defined bit rates can be transmitted, communication signals of a higher multiplex level being composed of communication signals (fig. 1, STS-48) of a lower multiplex level signal (fig. 1, STS-12), the cross-connect containing: a number of input/output ports (fig. 1, input to 10, and output from 10) respectively adapted to transmit and receive communication signals (fig. 1, signals to 10) of a particular multiplex level (fig. 1, STS-48), and a switching matrix connected to the input/output ports (fig. 1, 14), wherein the switching matrix is a space switching matrix which is adapted to switch communication signals of the lowest multiplex level (fig. 1, STS-12), and wherein input/output ports of higher multiplex levels are linked to the switching matrix via a DATA REFORMAT circuit (fig. 1, 18, "DATA REFORMAT") which is adapted to multiplex a number of communication signals of the lowest multiplex level (fig. 1, signal output from 14, STS-12) that are received from the switching matrix (fig. 1, 14), so as to form a communication signal of the corresponding higher multiplex level (fig. 1, output signals

from 10, STS-48), and to demultiplex (fig. 1, 12, "POINTER PROCESSOR") a communication signal of the higher multiplex level (fig. 1, STS-48) that is received from the respective input/output port, so as to form a number of communication signals of the lowest multiplex level (fig. 1, STS-12), and forward these individually to the switching matrix (fig. 1, 14). Baroncelli differs from the claimed invention in that Baroncelli does not specifically use the terms "demultiplex" and "multiplex", however, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to replace "POINTER PROCESSOR" and "DATA REFORMAT" circuits with "demultiplex" and "multiplex", respectively (column 2, lines 45-60; and fig. 5) in order to change the rate of data, for example from STS-48 to STS-12 or from STS-12 to STS-48, as it is taught by Baroncelli.

Regarding claim 2, Baroncelli teaches the optical switch 14 in fig. 1 is transparent to the switched signals (column 2, lines 45-60).

9. Claims 3-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baroncelli (U.S. Patent US 6,728,492 B1) in view of Shiragaki (U.S. Patent US 5,457,556).

Regarding claim 3, Baroncelli differs from the claimed invention in that Baroncelli does not specifically teach the optical switch 14 in fig. 1 is an optical space switching matrix. However, Shiragaki teaches an optical space switch (fig. 2, 10). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an optical space switch such as the one of Shiragaki

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for the cross-connect switch 14 of Baroncelli in order to rout optical signals with high flexibility.

Regarding claim 4, Baroncelli differs from the claimed invention in that Baroncelli does not specifically teach an electric space switching matrix. However, Shiragaki in a different embodiment teaches an electrical space switch (fig. 7, 13) for optical cross-connection. Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to incorporate an electrical space switch such as the one of Shiragaki for the switch in the cross-connect system of Baroncelli in order to reduce signal impairment caused by the cross-connect system.

10. Claims 5, 7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Baroncelli (U.S. Patent US 6,728,492 B1) in view of Tsuyama et al. (U.S. Patent US 6,404,940 B1).

Regarding claim 5, as it is understood in view of the above 112 problem, Baroncelli differs from the claimed invention in that Baroncelli does not specifically teach that in the cross-connect system a port for a lowest hierarchy level, with a bit rate of 2.66 Gbit/sec, and two higher hierarchy levels, each with four times the bit rate of the hierarchy level immediately below, are respectively provided, in which input/output ports of a middle multiplex level are linked to the switching matrix via a first multiplexer, the first multiplexer being adapted to multiplex four communication signals of the lowest hierarchy level so as to form one communication signal of the middle hierarchy level, and vice versa, and in which input/output ports of the top multiplex level are linked to



switching matrix via a second multiplexer, the second multiplexer being adapted to multiplex sixteen communication signals of the lowest hierarchy level so as to form one communication signal of the highest hierarchy level, and vice versa. However, Tsuyama teaches an optical cross connect system (fig. 63) for switching connections in an optical transmission network, in which optical communication signals of different multiplex levels (OC-12, OC-48, OC192) with respectively defined bit rates can be transmitted (column 1, lines 39-50). Tsuyama further teaches to multiples four signals at lowest multiplex level data rate of OC-12 to form a middle multiplex level signal OC-48 (fig. 63, 400), to demultiplex an OC-48 signal to four OC-12 signals (fig. 63, 600); and to multiplex sixteen OC-12 signals to form a highest multiplex level signal OC-192 (fig. 6, 300), to demultiplex an OC-192 signal to sixteen OC-12 signals (fig. 63, 500). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate a data rate conversion technique such as the one taught by Tsuyama in the optical multiplex, demultiplex, and cross-connect system taught by Baroncelli in order to switch optical signals of different data rate. It also would have been obvious to one having ordinary skill in the art at the time the invention was made to choose the lowest multiplex level at a different data rate, such as bit rate of 2.66 Gbit/sec, in order to switch signals of different industry standards.

Regarding claim 7, Baroncelli teaches a method for switching optical communication signals of different multiplex levels with respectively defined bit rates (fig. 1, STS-48, STS-12), communication signals of a higher multiplex level (fig. 1, STS-48) being composed of communication signals of a lower multiplex level (fig. 1, STS-

12), with the steps: receiving an optical communication signal (fig. 1, signals input to 10), if the optical communication signal is a communication signal of a higher multiplex level, sending the communication signal to a multiplexer (fig. 1, 18) and demultiplexing (fig. 1, 12) the communication signal so as to form a number of communication signals of the lowest multiplex level (fig. 1, STS-12); sending the communication signals of the lowest multiplex level to a switching matrix (fig. 1, signals from 12 to 14); the system inherently identifying the output to which the received communication signal is to be switched, switching the communication signal to a multiplexer (fig. 1, 18), multiplexing the communication signal so as to form a communication signal of the higher hierarchy level (fig. 1, output signal from 18), and forwarding the communication signal to the relevant output (fig. 1, output signal from 10). Baroncelli differs from the claimed invention in that Baroncelli does not specifically teach that if the communication signal is to be switched to an output which supports the lowest hierarchy level, switching the communication signal to the relevant output. However, Tsuyama teaches an optical cross connect system (fig. 63) for switching connections in an optical transmission network, wherein optical communication signals of different multiplex levels (OC-12, OC-48, OC192) with respective defined bit rates are transmitted (column 1, lines 39-50). Tsuyama further teaches switching the communication signal to the relevant output if the communication signal is to be switched to an output which supports the lowest hierarchy level (fig. 63, input signal OC-12 on left hand side of 200 to output signal OC-12 on right hand side of 200). Therefore, it would have been obvious for one of ordinary skill in the art at the time when the invention was made to apply the multiple hierarchy

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level signal cross-connection taught by Tsuyama in the system taught by Baroncelli and switch the lowest hierarchy level signal directly to the relevant ports in order to increase the flexibility of the cross-connect system to switch data at different rates.

11. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Sabella (U.S. Patent US 5,739,935) discloses a modular optical cross-connect architecture with optical wavelength switching, in which Sabella discloses a digital cross-connect node performs channel demultiplexing down to lower transmission hierarchies in addition to switching and routing at different data rate (column 1, lines 33-39).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quan-Zhen Wang whose telephone number is (571) 272-3114. The examiner can normally be reached on 8:30 AM - 5:00 PM, Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jason Chan can be reached on (571) 272-3022. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

qzw

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PRIMARY EXAMINER